



Walters et al
Ser. No. 10/694,345
Docket No. 03-384

Amendments to the Claims

Please note that "strikeout" matter is shown with larger-than-normal italic letters containing the strikeout horizontal marks such as in this example: *strikeout*.

1. (Cancelled)
2. (Currently Amended) The apparatus of claim ~~3~~ 4 wherein:
said first electrodes and said second electrodes are parallel to each other,
said first electrodes and said R row conductors are parallel to each other, and
said second electrodes and said C column conductors are perpendicular to each other.
3. (Currently Amended) The apparatus of claim ~~3~~ 4 wherein:
said non-conductive base member has a top portion and a bottom portion,
said row conductors and said column conductors are positioned away from the top portion of the said non-conductive base member.
4. (Currently amended) A multiple electrode pair array apparatus for use with a separate multiple well plate having

multiple nonconductive wells distributed in a two-dimensional matrix array having R rows and C columns, wherein the nonconductive wells are separated by walls having a wall thickness, comprising:

a non-conductive base member,

an array of pairs of electrodes attached to said base member and projecting therefrom, wherein said pairs of

~~electrodes~~ electrodes are distributed on said base member in a two-dimensional matrix array having R rows and C columns to enable registration with the separate two-dimensional matrix array of nonconductive wells and registration with the nonconductive walls having a wall thickness, wherein each pair of electrodes includes a respective first electrode and a respective second electrode,

an array of R row conductors attached to said non-conductive base member, wherein each row conductor is electrically connected to corresponding first electrodes in a corresponding row of first electrodes, and

an array of C column conductors attached to said non-conductive base member, wherein said C column conductors are perpendicular to said R row conductors, wherein each column conductor is electrically insulated from said row conductors, wherein each column conductor is electrically connected to

corresponding second electrodes in a corresponding column of second electrodes,

wherein an adjacent electrode pair spacing gap, which is substantially equal to the nonconductive wall thickness of the multiple nonconductive wells, is provided between a first electrode on one pair of electrodes and second electrode on an adjacent pair of electrodes, such that an inside wall of the multiple well plate is received in said adjacent electrode pair spacing gap with a friction fit.

5. (Cancelled)

6. (Currently amended)

The apparatus of claim 4

A-multiple-electrode-pair-array apparatus-for-use-with-a separate-multiple-well-plate having-multiple-nonconductive wells-distributed-in-a-two-dimensional-matrix-array-having R-rows-and-C-columns, comprising:-

a-non-conductive-base-member,-

an-array-of-pairs-of
electrodes-attached-to-said-base
member-and-projecting-therefrom,
wherein-said-pairs-of-electrodes
are-distributed-on-said-base
member-in-a-two-dimensional
matrix-array-having-R-rows-and-C
columns-to-enable-registration
with-the-separate-two-
dimensional-matrix-array-of
nonconductive-wells,-wherein
each-pair-of-electrodes-includes
a-respective-first-electrode-and
a-respective-second-electrode,-
an-array-of-R-row-conductors
attached-to-said-non-conductive
base-member,-wherein-each-row
conductor-is-electrically
connected-to-corresponding-first
electrodes-in-a-corresponding
row-of-first-electrodes,-and-
an-array-of-C-columns
conductors-attached-to-said-non-
conductive-base-member,-wherein

said-C-column-conductors-are
perpendicular-to-said-R-row
conductors,-wherein-each-column
conductor-is-electrically
insulated-from-said-row
conductors,-wherein-each-column
conductor-is-electrically
connected-to-corresponding
second-electrodes-in-a
corresponding-column-of-second
electrodes,- -

wherein said base member includes a plurality of access channels which are in registration with the wells of the multiple well plate.

7. (Original) The apparatus of claim 6 wherein said access channels are circular in shape.

8. (New) A combination multiple electrode pair array and a multiple well plate apparatus, comprising:

a multiple well plate having multiple nonconductive wells distributed in a two-dimensional matrix array having R rows and C

columns, wherein the nonconductive wells are separated by walls having a wall thickness, and

 a multiple electrode pair array, separable from said multiple well plate, which includes,

 a non-conductive base member,

 an array of pairs of electrodes attached to said base member and projecting therefrom, wherein said pairs of electrodes are distributed on said base member in a two-dimensional matrix array having R rows and C columns to enable registration with said separable two-dimensional matrix array of nonconductive wells and registration with the nonconductive walls having a wall thickness, wherein each pair of electrodes includes a respective first electrode and a respective second electrode,

 an array of R row conductors attached to said non-conductive base member, wherein each row conductor is electrically connected to corresponding first electrodes in a corresponding row of first electrodes, and

 an array of C column conductors attached to said non-conductive base member, wherein said C column conductors are perpendicular to said R row conductors, wherein each column conductor is electrically insulated from said row conductors, and wherein each column conductor is electrically connected to corresponding second electrodes in a corresponding column of second electrodes,

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wherein an adjacent electrode pair spacing gap, which is substantially equal to the nonconductive wall thickness, is provided between a first electrode on one pair of electrodes and second electrode on an adjacent pair of electrodes, such that an inside wall of the multiple well plate, having a wall thickness, is received in said adjacent electrode pair spacing gap with a friction fit.